A BRIEF CONSIDERATION OF THE CASES OF APPENDICITIS OCCURRING IN THE PRACTICE OF PROFESSOR WILLIAM H. CARMALT.

BEING A REPORT TO THE COMMITTEE ON MATTERS OF PROFESSIONAL INTEREST OF THE CONNECTICUT STATE MEDICAL SOCIETY FOR 1894.

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My experience in Appendicitis relates to forty-one cases all told —not counting Hospital cases under the care of my colleagues which I saw in consultation;—and while this number is not large enough to justify any positive generalization, it does present a sufficient variety to show that the clinical aspects are of great diversity and should, for that reason, make us extremely careful not to dogmatize or lay down hard and fast rules for diagnosis or treatment. I am less disposed to make positive rules the more cases I see, and I fully appreciate the feeling prompting the statement of my friend, Dr. Richardson of Boston, whose experience probably ten-fold outnumbers mine, who finds that writers are disposed to be positive in inverse ratio to their experience.*

In the cursory remarks I have to make in response to the circular letter of your Committee on Matters of Professional Interest, I shall not try to follow the series of questions they have issued, however admirably devised for the purpose of bringing out the experience of members of the Society, nor shall I confine myself to the cases occurring since 1888 as then suggested, although it goes without saying that by far the greater number have occurred since that time. Indeed the first four cases on my list are diagnoses made by "hind" sight; in thinking over the experiences of more recent years; before indeed the term appendicitis became the household word it now is in medical circles, while we still spoke of Typhlitis, Perityphilitis, and Peritonitis as separate and definite entities. Of these, one recovered after spontaneous evacuation of an abscess into the vagina; one died of a general suppurative peritonitis, from what I now suppose to be the rupture of an appendicecal abscess into the peritoneal cavity; one died of a general peritonitis without rupture, the autopsy first showing the abscess; the other declined operation for intestinal obstruction, but died from general peritonitis; the autopsy here also first revealing an appendicecal abscess as

* American Journal Medical Sciences, January 1894. p. 2.

the origin of the trouble. Leaving out these four cases which were not considered in the light of the most advanced ideas of the present time with regard to the asserted imperative necessity of operating upon every case, and even upon removing the appendix of children as a hygienic precaution against possible future trouble; we have thirty-six cases to consider and I shall take the liberty of considering them entirely from a clinical standpoint.

We can divide them at once, into two main groups, viz.: the suppurative and the non-suppurative, and these may again be considered, practically, surgically or therapeutically, each under two heads: the first or suppurative form into exactly when or when not to operate, (for no sane physician in the light of our present knowledge of abscess formation can for an instant hesitate as to the advisability of opening an abscess rather than waiting for it to open itself—the only reasons for delay being either the uncertainty of diagnosis or a concession to the feelings of the patient or friends). The second or non-suppurative form, into whether or not to advise an operation at all. This same division allows itself to be expressed, according to the clinical features as mild or severe, the former being the non-suppurative, the latter, those which go on to suppuration; and there is here also a further subdivision to be made of the mild cases into single and relapsing cases, while the suppurative may be classified into those pursuing a fairly gradual and uniform course, separating the pus from the peritoneal cavity by firm adhesions, and those in which no or but slight adhesions are found, and the pus is sooner or later discharged into the peritoneal cavity with the almost inevitable result of a fatal suppurative septic peritonitis. These may appropriately be designated the explosive or fulminating variety. At the extremes of these cases, the surgeon's skill does not have much occasion to be exercised. In the first attacks of cases pursuing a mild course, no surgeon with a proper sense of responsibility will advise an operation,—the epigrammatic dictum of "an inch and a half incision and a week and a half in bed" as a summary to justify a surgeon in his advice to a patient for every attack of colic, or to quote, "as soon as the first symptoms of appendicitis occur"* is too absurd to be

* Morris, New York Medical Journal, January 27th, 1894, page 98, second column, first line.

mentioned otherwise than in condemnation—and the condition of a patient with a suppurative septic peritonitis is so hopeless that the technique of the washing out of the abdomen is not a matter of much fineness of detail. On the other hand however, in the fortunately larger number of intermediate cases, the determination of the presence or absence of pus in a tumor of this region, and the exact relation of this tumor and its contained pus, with the details and technique of the opening of the abscess, when it may be that the peritoneal cavity is not firmly closed off from the pus cavity, and the further question of the advice to give with regard to the propriety of operating, and the method thereof in the relapsing non-suppurative cases, are points calling for careful judgment and accurate technical skill.

The non-suppurative cases are usually regarded as catarrhal in character, and like catarrhal inflammations elsewhere are liable to recurrences and it is in this that their danger lies. It has been a matter of observation since the beginning of the study of diseases that certain persons are liable to attacks of so-called colic, followed by a peritonitis of more or less severe character, but it has been reserved to the present generation to bring certain of these cases into a class of surgical disease, capable of being cured by a conservative operation, or of being altogether averted by an operation of a prophylactic character.

In my list of cases appended to this article, fifteen were non-suppurative; of these fifteen, eight were not operated upon, of whom four declined the operation, though advised to have it done, and in four no operation was advised, although the symptoms justified the diagnosis of appendicitis, because they were all first attacks subsiding in a few days; of the remaining eleven, four, as above stated, declined the operation for various reasons, some from dread of any operation, others because they could not be convinced of the dangers of delay, and others put it off to a more convenient time. Of the seven who were operated upon in the interval, all presented pathological changes in their appendices of greater or less extent, and there has been an entire cessation of their more or less frequent attacks of colic. This, furthermore, most ~~frequent~~ fact is also established in cases Nos. 5, 9, 14, 19, 20, 29, that the abscess for which the operation was perform-

ed, was the culmination of a series of attacks of colic, more or less definitely referable to the cæcal region, showing that the non-suppurative catarrhal form of the disease may, after a time, become suppurative. Indeed this is the legitimate ending of repeated attacks, and is the reason for the operation during the interval between the attacks, when the parts are in a quiescent state, with no infectious material to contend with, and consequently the danger of opening into the peritoneal cavity reduced to a minimum.

Limited as is the number of cases here considered, they include illustrations of all the principal varieties that I have seen described by authors, (except a class described by Dr. Fowler, of Brooklyn, who reports four cases of left-sided appendicitis, the diagnosis having been verified by or made on autopsy). As already stated these may be readily classified into non-suppurative and suppurative classes, and while pathologically this is a chasm of great width, as a matter of clinical distinction the one passes over into the other by almost imperceptible steps. In many cases we are quite unable to point to a single feature that would distinguish the one class from the other, and we are obliged to have recourse to the doctrine of probabilities and take the chances of operating unnecessarily rather than let the patient run the greater risk of some untoward complication of the purulent infection. I have not an over-inclination toward operative interference in any case, but in no case have I regretted operating, while in several I have regretted postponing the operation; in two, Nos. 24 and 38, with unfortunately fatal results. As it is from our ill successes or mistakes that we learn the most, these two cases will hereafter be given in greater detail.

By far the greater number of cases begin as a catarrhal appendicitis; the cases operated upon in which a foreign body of any kind, be it a fecal concretion or a seed, or shot, are rare as compared with those in which nothing is found, and appendices removed "in the interval" show various changes with more or less thickening of all the coats, indicating a state of chronic inflammation and tissue hypertrophy with not infrequent circumscribed collections of mucus or muco-purulent secretions which

have become encysted by the occlusion of the canal of the organ. This condition may and undoubtedly does in many individuals persist for many months or years, as is shown in autopsies of persons dying of diseases unconnected with the appendix; but it is a condition of uncertainty as to the future, and the histories and the pathological investigation show that a certain number of suppurative cases coming either to operation or post-mortem examination have come about by the development of an abscess from one of these chronically inflamed cases. It is not my purpose here to describe the pathology of the disease or the cause which brings about the transition from mucus to pus. I propose simply to discuss the clinical features of the disease from the point of view of the practitioner as he meets them in the course of general practice, without reference to the bacteriological pathology.

In by far the greater number the onset is apparently a colic of considerable severity, and in many cases it is quite possible that it passes off without any further development, but as we observe further we find that certain of them have more or less frequent repetitions of the attack, until at some one, (or it may be at the first), the pain localizes itself in the course of a few hours in the right iliac fossa. The colic may or may not, but more frequently is accompanied with vomiting; the condition of the lower bowel presents nothing characteristic and is of no value in a diagnostic view; there may be one or two movements, they may respond to the action of a cathartic, they may be inactive, there may be obstinate constipation, amounting to the suspicion of an intestinal obstruction. With the gradual localization of the pain to the right iliac region there is soon felt a sense of resistance to manipulation on the part of the physician, and it becomes a question of importance whether this resistance be due to muscular contraction on the part of the abdominal muscles or to an inflammatory product in or around the appendix, and I have thought there was a difference in the position of the leg in the two conditions. If there be a veritable tumor the patient prefers to keep the leg bent and quiet, while if it be simply a contraction of the abdominal muscles the movements of the leg do not affect the local pain. The situation of the point of great-

est tenderness has its bearing, and while "McBurney's point" is true for a large number of cases of appendicitis, it still is sufficiently often the case that the point of greatest tenderness is not so situated, so that nothing positive can be asserted by its absence. When the point of greatest tenderness is exactly on the line from the anterior superior spinous process of the ilium to the umbilicus, and at the distance of one and one half to two inches from the former, we are reasonably sure that we are having to do with an inflamed appendix in its usual position, but if the inflamed appendix be not in its usual position the point of greatest tenderness is somewhere else, so that this point upon which so much stress as a diagnostic sign has been laid, is only of value as an affirmative—as a negative it is valueless, and the opinion is becoming pretty well established in the minds of surgeons that all inflammations in the right iliac fossa are due to one or the other forms of appendicitis.

If the case is pursuing a mild course under a treatment of rest, gentle cathartics, and fomentations, the pain and tenderness subside, the tumor becomes less marked and may entirely disappear in the course of a week or so, to be followed at a variable interval of weeks or months or years by other attacks of similar or perhaps greater severity; one of which, however, goes on to the formation of pus. No one can tell from a clinical standpoint what determines the change. Indeed, evidence accumulates that many people go through life with attack after attack of catarrhal non-suppurative appendicitis, but these people are living over a volcano which is liable at any time to an eruption, and when such a thing occurs we have but an uncertain control over its subsequent course. It may give a surgeon time to open the abscess with safety; it may rupture into the peritoneal cavity almost without warning. In the less explosive class, when the catarrhal form passes over into the suppurative, with the formation of a wall of adhesions around the pus, agglutinating the intestines together and forming a mass which may be felt through the abdominal wall as a fairly firm tumor, we have a condition of things more or less under control; we can, if we choose, wait until adhesions have taken place between the wall of the abscess and the abdominal wall; we may, if we feel sure

of our asepsis, open the peritoneal cavity, and holding the intestines aside open and empty the abscess without contaminating the surrounding tissues. The former method was the universal practice when Typhlitis and Perityphlitis were the terms used to signify the situation of the abscess, and before we felt it was, under any circumstances, permissible or safe to open the peritoneal cavity—but recent surgery has taught us that in a certain number of cases there is a decided danger in waiting for these adhesions to form, and for the containing pus "to point;" that instead of "pointing" to some accessible situation on the external surface, it may "point" into the peritoneal cavity and, discharging its contents there, set up that almost uncontrolable disease, a suppurative peritonitis. If the pointing involves the wall of an intestine, cicatrices are liable to form, giving rise to complications which may lead to disastrous results years after in the way of intestinal obstruction. For these reasons, the treatment of these abscesses by surgeons who may justly be called ed conservative—in that their practice tends to preserve life—is to open them at the earliest moment that pus can be assured to be present. One may be guided somewhat by the course of previous attacks if such have been present, for if such is the case there is more probability that the adhesions have formed and that the course of the disease will be relatively slow as compared with the fulminating variety in which a fecal concretion formed in the appendix is most frequently the cause. Still, we occasionally meet with cases running a rapid course even in recurrent attacks, and one can never feel easy in a given case after pus has formed, until it has been given a safe exit through the external skin.

In the milder cases where the attacks pass off without the formation of pus, but in which a tumor has been present which has to a great measure, or even entirely subsided, the question of operating in the interval comes up. These cases, not infrequently, have been known to recur for years; they have been called various kinds of colic, bilious or otherwise; or localized peritonitis; are ascribed to some error in diet; are treated in various ways to restore the functional activity of the canal, the physician and patient resting in fancied security until one attack de-

velops into a "peritonitis;" and abscess, or death, or both puts an end to the tragedy.

No. 3 in my list is a case in point, and with some modification, also No. 20; in both of whom autopsies first revealed an appendicecal abscess appearing after repeated attacks of so-called idiopathic peritonitis, while Nos. 11, 16, 23, 25, 26, 32 and 41 show the happy results of removing the appendix in the interval between attacks of various degrees of frequency and intensity, but in all of whom the operation has been followed by a complete cessation of the attacks of "peritonitis," or "bilious colic," diagnosticated according to the fancy or pathological acumen of the physician.

The fourth and last class of cases that I have met with are fortunately rare, but as, if properly appreciated in the earlier stages, they are amenable to surgical treatment, within limits, it behooves us to be on the alert to recognize them, and yet it may be that, having the keenest possible sense of the dangers of delay, the symptoms are so uncertain that the true condition is not realized. (Case No. 24). These are the fulminating cases with occlusion of the canal of the appendix by a foreign body, be it a seed or some such thing, or a fecal concretion which has grown large enough to strangulate the circulation of the tissue and gangrene of the part beyond results. In these cases the suppuration takes place so rapidly that nature has not time to build up the wall of adhesions around the pus and it breaks into the general cavity with a minimum of movement, be it of the abdominal wall or of the intestines, and general septic purulent peritonitis breaks out that rapidly leads to a fatal termination,—forty-eight to ninety-six hours being often enough to close the scene. The only safety in these cases is an early operation, and the thorough washing out of the peritoneal cavity with antiseptic or sterilized water, with the use of such other remedies as the general condition demands. Desperate cases have been reported cured under these conditions, but the outlook is of the gravest. The unfortunate circumstance that the early symptoms of these desperate cases do not correspond with their gravity—at the outset are not markedly different from the cases which pursue a mild course—and the danger which lies in delay in this fulminating class is the

excuse and has been the occasion for operating in cases where nothing has been found. The justification of this last statement is not found in published reports, but is based upon personal, verbal statements of surgeons who would not care to have me publish their names, but whose names are guarantees that the operation was not undertaken through carelessness or want of consideration, but because, being unable to make up their minds conclusively, they preferred to err on the side of prudence, and have operated. This may seem like an extravagant way of stating the matter, but when one considers the relative dangers of a cleanly cut aseptic incision—even though it lay open the peritoneal cavity—with the condition of a patient with a quantity of pus loaded with pyogenic and saprophitic bacteria, it cannot be regarded as such. So far as is possible to formulate the views derived from the consideration of these cases, the rules which should govern us are then, viz:

First.—Attacks of appendicitis of a mild character, may, and should be, treated without operation.

Second.—Recurrence, however, even if of a mild character, should be operated upon in the interval, and the appendix removed as a prophylactic against a possibly dangerous attack in the future.

Third.—Appendiceal abscesses should be opened as soon as the diagnosis can be established.

Fourthly.—"When in doubt, lead trumps;" *it is better in attacks of any severity to operate rather than to procrastinate*, hoping that time will reveal something decisive—on the contrary the lapse of time more frequently obscures than clears up the diagnosis.

Cases Nos. 24 and 38, previously referred to, are cases in point where delay made inevitably fatal results to cases in which an early operation would possibly, nay, probably, have saved life.

No. 24 was a student at college under the immediate care of my friend, Dr. Foster; the initial constitutional symptoms were severe but the local evidences of appendicitis were not marked. He lived at a distance and word was sent that his father was coming on accompanied by his own surgeon. Not wishing to seem precipitate in operating, I deferred insisting until the evi-

dences of serious trouble became so marked that I refused to take the responsibility of delay, and operated before their arrival. Unfortunately, as already stated, the eighteen hours delay was fatal. We found a general septic peritonitis, due to the rupture of a thin walled abscess: the abscess itself covered by a gangrenous appendix in which a fecal concretion had lodged.

The other case was also of a young man, who was admitted into the New Haven Hospital on the third day of his illness with severe colicy pains, some tenderness in the lower part of his abdomen, not localized in his right iliac fossa, but with an indefinite sense of resistance there. Feeling reasonably sure of what I had to deal with, as is the rule of the Hospital, a consultation of the attending staff was called. Drs. Fleischner, Hawkes, and Russell, three other members besides myself attended, and it was decided by the majority that there were not sufficient evidences of localized disease to call for operative interference, but he was regarded as having an idiopathic peritonitis, (a condition that I do not believe exists), and no new symptoms developing, he was transferred to the medical side. After a few days, his condition gradually getting worse, he was re-transferred to the surgical side for operation for general suppurative appendicitis, in the forlorn hope that a thorough washing out of his peritoneal cavity would save his life. An incision in the median line for this purpose, showed no general peritonitis but an extremely congested state of the whole intestinal canal; no fluid in the peritoneal cavity, but there was a large post cæcal abscess with the gangrenous appendix embedded in it. He died on the operating table. I feel confident that if he had been operated upon in the early period after his admission, his life would have been saved; and in this case, certainly nothing was gained in diagnosis by waiting. The subsequent symptoms served only to obscure the correct opinion first formed as to the origin of the trouble.

1. Miss ——, Dr. Nickerson—Abscess, discharged into vagina.
2. Mr. ——, Drs. Nickerson and Bradstreet—General suppurative peritonitis. Laparotomy by Dr. Hartley Death.
3. Mr. P——, Dr. F. H. Wheeler General non suppurative peritonitis; Autopsy, multiple abscesses.

4. Mr. P——, Dr. Gaylord—Diagnosis: intestinal obstruction: refused operation—autopsy: general non-suppurative peritonitis; abscess of appendix found.
5. Mr. V—, Dr. Grannis—Abscess recurrences in Jan., 1891: recovery. Secondary abscess in September following—death from general peritonitis.
6. Miss M——, Dr. Luby—Catarrhal appendicitis, tumor, operation advised by self, Drs. Bacon and Russell: refused—recovery: no history of discharge into internal canals or of recurrences.
7. Miss C——, (60), Drs. Grannis and Bidwell, of Deep River; Abscess, operation, recovery.
8. Master L——, Dr. Grannis,—Catarrhal appendicitis, tumor: advised non-interference; recovery: no recurrences.
9. Master F——, Drs. Grannis and Hubbard, Essex—Following recurrences; abscess: operation: recovery.
10. Laborer, Hospital patient: sent in by Dr. Mailhouse—Catarrhal appendicitis, tumor: no interference: recovery.
11. Mr. B——, Dr. Osborne—Three attacks of catarrhal appendicitis; advised intercurrent operation; performed at Hospital; thickened appendix; recovery.
12. Colored janitor, sent to Hospital by Dr. DeForest—General adhesive peritonitis: great tympanites: incision in median line, opened into intestine: abscess behind cæcum dissecting up to diaphragm: appendix gangrenous, containing fecal concretion.
13. Mr. G——, Dr. C. J. Foote—Abscess; following recurrences, operation; recovery.
14. Russian Jew, Hospital patient: several recurrences followed by abscess; long continued sinus; recovery.
15. ——, Hospital patient: admitted moribund: great tympanites; general suppurative peritonitis: abscess behind cæcum: patient ambulatory until day previous to death.
16. Mr. W——, Dr. Osborne—Catarrhal Appendicitis; intercurrent operation advised: performed by Dr. Lange: necessity of operation reported by attendant.

17. Master K——, Dr. Shelton—Traumatic Appendicitis, abscess; operation; recovery.
18. Miss——, (13), Dr. W. S. Russell—Abscess; no operation; discharge into rectum; recovery.
19. Mr. S——, Drs. Shelton and Richardson—recurrent attacks, abscess; operation; intestinal fistula; recovery.
20. Miss S——, Dr. W. G. Daggett—Repeated attacks of peritonitis of supposed ovarian origin; general adhesive peritonitis; operation; death; autopsy, appendicecal abscess; no Salpingitis.
21. Mr. M——, Dr. J. W. Seaver—Catarrhal Appendicitis; tumor; recovery; recurrences; operation advised; declined.
22. Mr. G——, Dr. J. W. Seaver—Catarrhal Appendicitis; first attack; recovery.
23. Mr. S——, Dr. Foster—Catarrhal Appendicitis; several recurrences; tumor; recovery; intercurrent operation; appendix much hypertrophied; no subsequent attacks.
24. Mr. N——, Dr. Foster—Ulcerative Appendicitis; general septic suppurative peritonitis; operation; fecal concretion; death fifth day.
25. Mr. G——, Dr. Wright—Catarrhal Appendicitis; tumor, recovery—second attack two months, tumor; recovery; intercurrent operation performed, recovery; appendix hypertrophied.
26. Mr. DeB——, Dr. Foster—Catarrhal Appendicitis, frequent attacks; intercurrent operation, recovery; appendix hypertrophied; no subsequent attacks.
27. Mr. R——, Dr. Bellosa—Abscess, operation; recovery.
28. Mr. G——, Dr. Bellosa—Abscess, operation; recovery.
29. Mrs P——, Drs. Foster and Daggett—Abscesses (multiple), operation, recovery, with long continued sinuses.
30. Mr. G——, Dr. Fleischner—Abscess, operation; recovery.
31. Mr. B——, Dr. Grannss—Abscess, operation; recovery.
32. Mr. D——, Dr. Foster—Recurrent catarrhal appendicitis; intercurrent operation, small fecal concretion, slight ulceration of mucous membrane; recovery.

33. Mrs. B——, (69)—Dr. Tenney—Catarrhal Appendicitis; recurrent, operation advised; declined.
34. Mr. F——, Dr. Foster—Abscess, operation; recovery.
35. Miss D——, Drs. Hubbard and Foster—Recurrent appendicitis, (so-called peritonitis), operation by Dr. Stimson at New York Hospital; recovery; "great necessity for operation," reported.
36. Mr. S——, Dr. Mailhouse—Diffuse tenderness; operation advised and refused; came to hospital under Dr. Bacon's care; recovery.
37. Mr. H——, Dr. Randall—Abscess, operation; recovery.
38. Mr. Z——, Dr. C. P. Lindsley—Catarrhal Appendicitis, tumor; recovery—intercurrent operation declined, (second attack.)
39. Mr. F——, Hospital patient, Drs. Fleischner, Russell and Hawkes in consultation; clinical diagnosis—non-suppurative general peritonitis; operation not advised by consultants; peritonitis treated "medically;" became worse, operation advised as *dernier resort* for suppurative peritonitis; death on table; large abscess behind cæcum with no general peritonitis.
40. Mrs.——, Drs. Fleischner and Mr. Simrow—Recurrent catarrhal appendicitis, intercurrent operation advised; declined.
41. Mr. W——, Dr. L. W. Bacon, Jr.—Catarrhal Appendicitis; mild case; no tumor; tenderness disappeared and tumor found on ninth day; on tenth, operation performed, foreign body, Johannisberry or biliary calculus.